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OM protein - protein search, using sw model

Run on: June 18, 2003, 03:16:37 ; Search time 40.1143 Seconds
(without alignments)
1215.770 Million cell updates/sec

Title: US-09-807-933B-3

Perfect score: 2020
Sequence: 1 MKFRTTSALALALGTEM.....TYKEVCPKEIFAKTCGRK 366Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 200000000Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

A. Geneseq. 101002.*
1: /SID52/gcgdata/geneseq/geneseq-emb1/AA1980.DAT.*
2: /SID52/gcgdata/geneseq/geneseq-emb1/AA1981.DAT.*
3: /SID52/gcgdata/geneseq/geneseq-emb1/AA1982.DAT.*
4: /SID52/gcgdata/geneseq/geneseq-emb1/AA1983.DAT.*
5: /SID52/gcgdata/geneseq/geneseq-emb1/AA1984.DAT.*
6: /SID52/gcgdata/geneseq/geneseq-emb1/AA1985.DAT.*
7: /SID52/gcgdata/geneseq/geneseq-emb1/AA1986.DAT.*
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22: /SID52/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.*
23: /SID52/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	2020	100.0	366	21	Endoglucanase prot
2	2020	100.0	366	23	Rhizopus arthizus
3	2020	100.0	366	23	R. oryzae CP96001
4	1612	79.8	338	21	Endoglucanase prot
5	1612	79.8	338	23	Rhizopus arthizus
6	1612	79.8	338	23	R. oryzae CP96001
7	1363.5	67.5	387	21	Endoglucanase prot
8	1363.5	67.5	387	23	Rhizopus arthizus
9	1363.5	67.5	387	23	M. circinelloides
10	1332	65.9	360	21	Endoglucanase prot

11	1332	65.9	360	23	AAO15054
12	1332	65.9	360	23	ABO80862
13	1231.5	61.0	245	23	AAO15063
14	1202	59.5	338	21	ABO98824
15	1202	59.5	338	23	AAO15055
16	1202	59.5	338	23	ABO80863
17	1146	56.7	228	23	AAO15062
18	1069	52.9	346	21	ABO98826
19	1069	52.9	346	23	AAO15057
20	1069	52.9	346	23	ABO80865
21	757.5	37.5	225	21	AA84798
22	757.5	37.5	225	22	ABO5057
23	757.5	37.5	299	17	AAW04928
24	757.5	37.5	299	19	AAW53970
25	753.5	37.3	225	17	AAW04925
26	753.5	37.3	297	17	AAW04933
27	753.5	37.3	308	17	AAW04934
28	752.5	37.2	306	19	AAW44270
29	750.5	37.2	200	19	AAW53979
30	748.5	37.1	204	19	AAW53970
31	742.5	36.8	200	19	AAW53968
32	741.5	36.7	200	19	AAW53967
33	732	36.2	223	23	AAO15070
34	732	36.2	223	23	AAO80602
35	722.5	35.8	202	19	AAW53972
36	722.5	35.8	222	17	AAW04929
37	722.5	35.8	294	17	AAW04937
38	715	35.4	349	17	AAW04927
39	707.5	35.0	304	19	AAW44272
40	706.5	35.0	306	19	AAW44269
41	706	35.0	310	17	AAW04931
42	698	34.6	201	19	AAW53966
43	692	34.3	307	19	AAW44273
44	690.5	34.2	225	18	AAW16542
45	684	33.9	286	19	AAW57420

ALIGNMENTS

RESULT 1	
AAO98822	standard; Protein; 366 AA.
XX	
AC	AAO98822;
XX	
DT	25-SEP-2000 (first entry)
XX	
DE	Endoglucanase protein sequence 2.
KW	Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW	animal foodstuff.
XX	
OS	Rhizopus oryzae.
XX	
PN	WO200024879-A1.
XX	
PD	04-MAY-2000.
XX	
PF	25-OCT-1999; 99WO-JP05884.
XX	
PR	23-OCT-1998; 98JP-0302387.
XX	
PA	(MEIT) MEIT SEIKA KAISHA LTD.
XX	
PI	Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
PI	Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX	
DR	WPI; 2000-365117/31.
XX	
PT	N-PSDB; AAA62727.
XX	
PT	Endoglucanases of fungal origin with high activity under alkaline conditions for production of paper pulp and animal feedstuffs -

XX Claim 44; Page 110-113; 180pp; Japanese.

CC This sequence represents an endoglucanase protein. The invention relates
CC to an endoglucanase of fungal origin which can completely break down
CC purified cellulose at a concentration of less than 1mg protein/litre,
CC and produces more than 50% breakdown of cellulose at pH 8.5. The
CC invention includes endoglucanase protein sequences (see
CC AA09825-809830), endoglucanase nucleotide sequences (see
CC AA62726-862732), and primers (AA62733-862802) which are used in the
CC identification of the endoglucanase sequences, and in the construction of
CC vectors containing the polynucleotides. The endoglucanase enzymes are
CC used for the production of pulp for papermaking and for the production of
CC animal feedstuffs.

XX Sequence 366 AA;

Query Match 100.0%; Score 2020; DB 21; Length 366;
Best Local Similarity 100.0%; Pred. No. 9:4e-132;
Matches 366; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTITSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTCKVSNNDYISQC 60
DB 1 MKFTITSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTCKVSNNDYISQC 60
QY 61 LAPESNGNKSSECSKLYGCGGKDMNGPTCCSGSTCKVSNNDYISQCLAPESNGNKTSES 120
DB 61 LAPESNGNKSSECSKLYGCGGKDMNGPTCCSGSTCKVSNNDYISQCLAPESNGNKTSES 120
QY 121 AHKTTTTPAKETITTTAKASNSNSGKYSIVSGASGNGVTTTRYWDCCKASGWPCKA 180
DB 121 AHKTTTTPAKETITTTAKASNSNSGKYSIVSGASGNGVTTTRYWDCCKASGWPCKA 180
QY 181 NVSPVSKCNKQGVTLSDSNVSGCNGNSYMCNDNOPWAVNDNLAYGFAAAASGGGE 240
DB 181 NVSPVSKCNKQGVTLSDSNVSGCNGNSYMCNDNOPWAVNDNLAYGFAAAASGGGE 240
QY 241 SRWCSCFELTFTSTSVAGKKNVIOVTNTGDLGSSGTGAHFDLQMPGGGVIENGCSKQW 300
DB 241 SRWCSCFELTFTSTSVAGKKNVIOVTNTGDLGSSGTGAHFDLQMPGGGVIENGCSKQW 300
QY 301 GAPNDGWSRYYGIGISSASDCSSLPALQAGCKRFFWFKNADNPMTYKEVTCPEKITAK 360
DB 301 GAPNDGWSRYYGIGISSASDCSSLPALQAGCKRFFWFKNADNPMTYKEVTCPEKITAK 360
QY 361 TGCSRK 366
DB 361 TGCSRK 366

RESULT 2
ID AAO15053 standard; Protein; 366 AA.

XX AAO15053;

DT 22-AUG-2002 (first entry)

XX Rhizopus arrhizus endoglucanase-related protein 2.

KW Zygomycetes-originated endoglucanase; cellulose binding domain;

XX fibre processing; waste paper de-inking; paper pulp.

OS Rhizopus arrhizus.

XX WO200242474-A1.

XX 30-MAY-2002.

XX 21-NOV-2001; 2001WO-JP10188.

XX 21-NOV-2000; 2000JP-0354296.

PA (MEIJ) MEIJ SEIKA KAISHA LTD.

XX Nakane A, Baba Y, Koga J, Kubota H;

XX WPI; 2002-471729/50.

DR N-PSDB; AAL43245.

XX Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,

PT with effect of endoglucanase activity enhanced in processing fibers,

XX deinking waste paper and improving freeness of paper pulp

PS Claim 5; Page 58-60; 109pp; Japanese.

CC The invention comprises the amino acid and coding sequences of
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zygomycetes-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.
CC The present amino acid sequence represents an endoglucanase-related
CC protein of the invention.

XX Sequence 366 AA;

Query Match 100.0%; Score 2020; DB 23; Length 366;
Best Local Similarity 100.0%; Pred. No. 9:4e-132;
Matches 366; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTITSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTCKVSNNDYISQC 60
DB 1 MKFTITSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTCKVSNNDYISQC 60
QY 61 LAPESNGNKSSECSKLYGCGGKDMNGPTCCSGSTCKVSNNDYISQCLAPESNGNKTSES 120
DB 61 LAPESNGNKSSECSKLYGCGGKDMNGPTCCSGSTCKVSNNDYISQCLAPESNGNKTSES 120
QY 121 AHKTTTTPAKETITTTAKASNSNSGKYSIVSGASGNGVTTTRYWDCCKASGWPCKA 180
DB 121 AHKTTTTPAKETITTTAKASNSNSGKYSIVSGASGNGVTTTRYWDCCKASGWPCKA 180
QY 181 NVSPVSKCNKQGVTLSDSNVSGCNGNSYMCNDNOPWAVNDNLAYGFAAAASGGGE 240
DB 181 NVSPVSKCNKQGVTLSDSNVSGCNGNSYMCNDNOPWAVNDNLAYGFAAAASGGGE 240
QY 241 SRWCSCFELTFTSTSVAGKKNVIOVTNTGDLGSSGTGAHFDLQMPGGGVIENGCSKQW 300
DB 241 SRWCSCFELTFTSTSVAGKKNVIOVTNTGDLGSSGTGAHFDLQMPGGGVIENGCSKQW 300
QY 301 GAPNDGWSRYYGIGISSASDCSSLPALQAGCKRFFWFKNADNPMTYKEVTCPEKITAK 360
DB 301 GAPNDGWSRYYGIGISSASDCSSLPALQAGCKRFFWFKNADNPMTYKEVTCPEKITAK 360
QY 361 TGCSRK 366
DB 361 TGCSRK 366

RESULT 3
ID ABB08061 standard; protein; 366 AA.

XX ABB08061;

DT 27-AUG-2002 (first entry)

XX R. oryzae Cp96001 RCEII protein.

KW Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;

XX pulp treatment; RCEII.

XX Rhizopus oryzae.

FH Key . Location/Qualifiers
 FT Peptide 1..23
 FT /note= "signal peptide"
 FT Protein 24..366
 FT /note= "mature protein"
 XX MO200238754-A1.
 XX 16-MAY-2002.
 XX 12-NOV-2001; 2001WO-JP09858.
 XX 10-NOV-2000; 2000JP-0343921.
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX Koga J, Nakane A, Baba Y, Kono T;
 XX WPI; 2002-471555/50.
 XX
 XX Cellulase preparations containing transconjugant-originated
 PT endoglucanase and non-ionic surfactants, useful in detergent
 PT compositions, in treating cellulose fibers and deinking waste paper and
 PT improving freeness of paper pulp -
 XX
 PS Claim 3; Page 23-24; 38pp; Japanese.
 CC The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEII, RCEII, MCEII, MCEII or PCEI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC R. oryzae CP96001 RCEII protein.
 CC
 XX
 XX Sequence 366 AA;
 SQ
 Query Match 100.0%; Score 2020; DB 23; Length 366;
 Best Local Similarity 100.0%; Pred. No. 9, 4e-132;
 Matches 366; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 MKRITTTSSALLALGTEMASAAKCSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC 60
 DB 1 MKRITTTSSALLALGTEMASAAKCSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC 60
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 DB 121 AKHTTTTAPAKIITTTAKASNSNSGKYSIVSGASGNGVTRTWDCCKASCMPGKA 180
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 DB 181 NVSSPVKSCNKDGVTALSDSNVSGCGNGSYNCNDNPWAVNDNIAYGPAAAIISGGGE 240
 QY 241 SRKCCCFELTFTSTSVAGKKMIVTNTGDLGSSGAFDLOMGGVGINSGSKQW 300
 DB 241 SRKCCCFELTFTSTSVAGKKMIVTNTGDLGSSGAFDLOMGGVGINSGSKQW 300
 QY 301 GARNDSGRYGGIISASDCSSLPALQACCKRPMFKVADNPSTYKXETCPKAITAK 360
 DB 301 GARNDSGRYGGIISASDCSSLPALQACCKRPMFKVADNPSTYKXETCPKAITAK 360
 QY 361 TGCSRK 366
 DB 361 TGCSRK 366

RESULT 4
 ID AAB09821
 ID AAB09821 standard; Protein; 338 AA.
 AC AAB09821;
 XX
 XX 25-SEP-2000 (first entry)
 XX
 XX Endoglucanase protein sequence 1.
 DE Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 XX animal foodstuff.
 XX
 XX Rhizopus oryzae.
 XX
 XX WO200024879-A1.
 XX 04-MAY-2000.
 XX
 XX 25-OCT-1999; 99WO-JP05884.
 XX
 XX 23-OCT-1998; 98JP-0302387.
 XX
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
 XX Muraashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
 DR WPI; 2000-365117/31.
 DR N-PSDB; AAB62726.
 XX
 XX Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs -
 XX
 PS Claim 44; Page 106-108; 180pp; Japanese.
 CC This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/1litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal feedstuffs.
 CC
 XX
 XX Sequence 338 AA;
 SQ
 Query Match 79.8%; Score 1612; DB 21; Length 338;
 Best Local Similarity 80.6%; Pred. No. 1, 3e-103;
 Matches 304; Conservative 9; Mismatches 14; Indels 50; Gaps 3;
 QY 1 MKRITTTSSALLALGTEMASAAKCSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC 60
 DB 1 MKRITTTSSALLALGTEMASAAKCSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC 60
 QY 61 LAPESNGNSSECSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC LAPESNGNTSBS 120
 DB 61 LAPESNGNSSECSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC LAPESNGNTSBS 120
 QY 121 AKHTTTTAPAKIITTTAKASNSNSGKYSIVSGASGNGVTRTWDCCKASCMPGKA 169
 DB 121 AKHTTTTAPAKIITTTAKASNSNSGKYSIVSGASGNGVTRTWDCCKASCMPGKA 169
 QY 170 CRASCMPGKAVSSPVKSCNKDGVTALSDSNVSGCGNGSYNCNDNPWAVNDNLAVG 229
 DB 170 CRASCMPGKAVSSPVKSCNKDGVTALSDSNVSGCGNGSYNCNDNPWAVNDNLAVG 229
 QY 230 FAAAAISGGESRWCCSFELTFTSTSVAGKKMIVTNTGDLGSSGAFDLOMGGG 289
 DB 230 FAAAAISGGESRWCCSFELTFTSTSVAGKKMIVTNTGDLGSSGAFDLOMGGG 289

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Db      202  FAAAAISGGGSESRWCCSCFELTFTSTSVAGKMMVQVNTGTGDLGSSGTGAHFDLQMPGGG 261
Qy      290  VGIFNGCSKQMGAPNDGWSRGYGISASDCCSLPSALQAGCKRMRFNMFKNADNPSMTYK 349
Db      262  VGIFNGCSQMGAPNDGWSRGYGISASDCCSLPSALQAGCKRMRFNMFKNADNPSMTYK 321
Qy      350  EYTCPKEITAKTGCSRK 366
Db      322  EYTCPKEITAKTGCSRK 338

RESULT 5
ID      AA015052 standard; Protein; 338 AA.
AC      AA015052;
XX      22-AUG-2002 (first entry)
DT      Rhizopus arrhizus endoglucanase-related protein 1.
DE      Zygomycetes-originated endoglucanase; cellulose binding domain;
KM      fibre processing; waste paper de-inking; paper pulp.
XX      Rhizopus arrhizus.
OS      WO200242474-A1.
XX      30-MAY-2002.
XX      21-NOV-2001; 2001WO-JP10168.
XX      21-NOV-2000; 2000JP-0354296.
XX      (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX      Nakane A, Baba Y, Koga J, Kubota H;
XX      WPI; 2002-471729/50.
XX      N-PSDB; AAL43244, AAL43250.
DR      Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
XX      with effect of endoglucanase activity enhanced in processing fibers,
XX      deinking waste paper and improving freeness of paper pulp.
XX      Claim 5; Page 54-55; 109pp; Japanese.
XX      The invention comprises the amino acid and coding sequences of
XX      zygomycetes-originated endoglucanase enzymes lacking the cellulose
XX      binding domain. The zygomycetes-originated endoglucanase enzymes of the
XX      invention have enhanced endoglucanase activity. The zygomycetes-
XX      originated endoglucanase enzymes of the invention are useful for
XX      processing fibres, de-inking waste paper and improving the freeness of
XX      paper pulp - which is particularly applicable in detergent compositions.
XX      The present amino acid sequence represents an endoglucanase-related
XX      protein of the invention.
XX      Sequence 338 AA;
SQ
Query Match      79.8%; Score 1612; DB 23; Length 338;
Best Local Similarity 80.6%; Pred. No. 1.3e-103;
Matches 304; Conservative 9; Mismatches 14; Indels 50; Gaps 3;
Qy      1  MKFITTSQALLALGTEMASAKCSKLYGCGGKDMNPGTCCSGSTCKVSNNDYQOC 60
Db      1  MKFITASALLALGTEMASAAECCKLYGCGGKDMNPGTCCSGSTCKVSNNDYQOC 60
Qy      61  LAPBENKMSKSCSKLYGCGGKDMNPGTCCSGSTCKVSNNDYQOC LAPBENKMTSES 120
Db      61  LPSGSGSKMS-----BSAHKKTITA 81
Qy      121 AHKT-----TTAPAKETTTAKAS-----NSSNSGKYIVGSGAGNGVTRRYWDC 169

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Db      82  AHKTTTAHKKTTTAPAKETTTAKASPPNSSSSSSGKYSAVGSGAGNGVTRRYWDC 141
Qy      170  CKAQSGWPKKAVSSPVKSCNDGYTALSDSNVQGCNGNSYMCNDNDPMAVNNNLAYG 229
Db      142  CRAKSGWPKKAVSSPVKSCNDGYTALSDSNVQGCNGNSYMCNDNDPMAVNNNLAYG 201
Qy      230  FAAAAISGGGSESRWCCSCFELTFTSTSVAGKMMVQVNTGTGDLGSSGTGAHFDLQMPGGG 289
Db      202  FAAAAISGGGSESRWCCSCFELTFTSTSVAGKMMVQVNTGTGDLGSSGTGAHFDLQMPGGG 261
Qy      290  VGIFNGCSKQMGAPNDGWSRGYGISASDCCSLPSALQAGCKRMRFNMFKNADNPSMTYK 349
Db      262  VGIFNGCSQMGAPNDGWSRGYGISASDCCSLPSALQAGCKRMRFNMFKNADNPSMTYK 321
Qy      350  EYTCPKEITAKTGCSRK 366
Db      322  EYTCPKEITAKTGCSRK 338

RESULT 6
ID      ABB08060 standard; protein; 338 AA.
AC      ABB08060;
XX      27-AUG-2002 (first entry)
DT      R. oryzae CP96001 RCEI protein.
DE      Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
KM      pulp treatment; RCEI.
XX      Rhizopus oryzae.
OS      WO200238754-A1.
XX      16-MAY-2002.
XX      12-NOV-2001; 2001WO-JP09858.
XX      10-NOV-2000; 2000JP-0343921.
XX      (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX      Koga J, Nakane A, Baba Y, Kono T;
XX      WPI; 2002-471555/50.
XX      Cellulase preparations containing transconjugant-originated
XX      endoglucanase and non-ionic surfactants, useful in detergent
XX      compositions, in treating cellulose fibers and deinking waste paper and
XX      improving freeness of paper pulp.
XX      Claim 3; Page 21-22; 38pp; Japanese.
XX      The invention relates to a cellulase preparation comprising a
XX      transconjugant-originated endoglucanase and a non-ionic surfactant. The
XX      endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCBI
XX      proteins. The preparations are useful in detergent compositions, in
XX      treating cellulose fibers and deinking waste paper and improving the
XX      freeness of paper pulp. The fibers treated by the preparations have
XX      reduced feathering and improved skin-feel and appearance with colour
XX      clarification, local change in colour and softening, and after deinking
XX      and paper pulp treatment, there is an improvement on freeness of the
XX      paper pulp. This treatment with the cellulase preparation can be operated
XX      at significantly lower cost. The present sequence represents the

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XX PF1, 2002-471729/50.
 DR N-PSDB; AAL43248.
 XX Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 PT deinking waste paper and improving freeness of paper pulp -
 XX Claim 5, Page 73-75; 109pp; Japanese.
 PS
 XX The invention comprises the amino acid and coding sequences of
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The zygomycetes-
 CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.
 XX
 SQ Sequence 387 AA
 Query Match 67.5%; Score 1363.5; DB 23; Length 387;
 Best Local Similarity 62.6%; Pred. No. 2.2e-86;
 Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;
 QY 1 MKFTITSSALIALALGTEWASAKSKLYGQCGGKDMNPTCCSGSTCKVSNL--YYS 58
 DB 1 MKFTVAITSIIVALALSSS--AEAASCSVYGGCGGIGMTGPTCCDAGSTCKAQKDKKYY 59
 QY 59 QCLAPESNGKSKSECSKLYGQCGGKDMNPTCCSGSTC--KYSNDYYSOCLAPES---- 112
 DB 60 QCLPKPKGSSSSSSSSSVSGCGGIGMTGPTCCSGSTCKVAQENKYYSOCL--PGSHSN 118
 QY 113 --NGNKTSESAHKTITTTTAPA-----KEIT-----TTAKASNSNSGKYSIV 153
 DB 119 AGNASSTKSTSTKTSTTAKATATVTTKTKTTTAKTSTTAAASTSTSSAGYKVI 178
 QY 154 SGGASGNGVTRRYWDCCKASCSWPGKANSVPKSCNKDGYTALSDSNVSGCNGNSYM 213
 DB 179 SGGKSGSGSTTRRYWDCCKASCSWPGKASVTPVDTCAISNGISL--DNAAGSGCNGNGFM 237
 QY 214 CNDNQPAVNDNLAYGFAAAAIISGGGSRWCCSCELTFTSTSVAGKMWIQTNTGDL 273
 DB 238 CNDNQPAVNDNLAYGFAAASINAGSNEMGCGCYELFTISGAAGKMWVQVNTNGDL 297
 QY 274 GSSTGAHFIDLQMPGGGVGIFNGCSKQWGAENDGMSRYGIISSASDCSSLPALQAGCKW 333
 DB 298 GSN---HFDLQMPGGGVGIFNGCAAOWGAPNDGARGVSVSDCASLPSALQAGCKW 354
 QY 334 RENNFKADNPSTMYKEVTCPEKITAKTGCSRK 366
 DB 355 RENNFKNSDNPMTFKEVTCPEKITLITRSGCERK 387
 RESULT 9
 ID ABB08064 standard; protein; 387 AA.
 XX ABB08064;
 AC
 XX 27-AUG-2002 (first entry)
 DT
 XX M. circinelloides CP99001 MCEII protein.
 DE
 XX Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KW pulp treatment; MCEII.
 XX Mucor circinelloides.
 OS
 XX Key Location/Qualifiers
 FH Peptide 1..22
 FT /note="signal peptide"

FT Protein 23..387
 FT /note="mature protein"
 XX
 XX PN MO200238754-A1.
 XX PD 16-MAY-2002.
 XX PF 12-NOV-2001; 2001WO-JP09858.
 XX PR 10-NOV-2000; 2000JP-0343921.
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX Koga J, Nakane A, Baba Y, Kono T;
 XX PF1, 2002-471555/50.
 DR The invention relates to a cellulase preparation comprising a
 XX cellulase and a non-ionic surfactant. The
 XX cellulase is selected from RCEI, RCEII, RCEIII, MCEII or PCEI
 XX proteins. The preparations are useful in detergent compositions, in
 XX treating cellulose fibers and deinking waste paper and improving the
 XX freeness of paper pulp. The fibers treated by the preparations have
 XX reduced feathering and improved skin-feel and appearance with colour
 XX clarification, local change in colour and softening, and after deinking
 XX paper pulp. This treatment with the cellulase preparation can be operated
 XX at significantly lower cost. The present sequence represents the
 CC M. circinelloides CP99001 MCEII protein.
 CC
 SQ Sequence 387 AA;
 Query Match 67.5%; Score 1363.5; DB 23; Length 387;
 Best Local Similarity 62.6%; Pred. No. 2.2e-86;
 Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;
 QY 1 MKFTITSSALIALALGTEWASAKSKLYGQCGGKDMNPTCCSGSTCKVSNL--YYS 58
 DB 1 MKFTVAITSIIVALALSSS--AEAASCSVYGGCGGIGMTGPTCCDAGSTCKAQKDKKYY 59
 QY 59 QCLAPESNGKSKSECSKLYGQCGGKDMNPTCCSGSTC--KYSNDYYSOCLAPES---- 112
 DB 60 QCLPKPKGSSSSSSSSSVSGCGGIGMTGPTCCSGSTCKVAQENKYYSOCL--PGSHSN 118
 QY 113 --NGNKTSESAHKTITTTTAPA-----KEIT-----TTAKASNSNSGKYSIV 153
 DB 119 AGNASSTKSTSTKTSTTAKATATVTTKTKTTTAKTSTTAAASTSTSSAGYKVI 178
 QY 154 SGGASGNGVTRRYWDCCKASCSWPGKANSVPKSCNKDGYTALSDSNVSGCNGNSYM 213
 DB 179 SGGKSGSGSTTRRYWDCCKASCSWPGKASVTPVDTCAISNGISL--DNAAGSGCNGNGFM 237
 QY 214 CNDNQPAVNDNLAYGFAAAAIISGGGSRWCCSCELTFTSTSVAGKMWIQTNTGDL 273
 DB 238 CNDNQPAVNDNLAYGFAAASINAGSNEMGCGCYELFTISGAAGKMWVQVNTNGDL 297
 QY 274 GSSTGAHFIDLQMPGGGVGIFNGCSKQWGAENDGMSRYGIISSASDCSSLPALQAGCKW 333
 DB 298 GSN---HFDLQMPGGGVGIFNGCAAOWGAPNDGARGVSVSDCASLPSALQAGCKW 354
 QY 334 RENNFKADNPSTMYKEVTCPEKITAKTGCSRK 366
 DB 355 RENNFKNSDNPMTFKEVTCPEKITLITRSGCERK 387
 RESULT 10

AA09823
ID AAB09823 standard; Protein; 360 AA.
AC AAB09823;
XX
XX 25-SEP-2000 (first entry)
XX
XX Endoglucanase protein sequence 3.
DE Endoglucanase; cellulose breakdown; produce pulp; papermaking;
XX animal foodstuff.
XX Rhizopus oryzae.
OS
XX MO200024879-A1.
XX
XX 04-MAY-2000.
XX
XX 25-OCT-1999; 99MO-JP05884.
XX
XX 23-OCT-1998; 98JP-0302387.
XX
XX (MEIJ) MEIJI SEIKA KAISHA LTD.
XX Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T,
PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX
XX MPI; 2000-365117/31.
XX N-PSDB; AAA62728.
XX
XX Endoglucanases of fungal origin with high activity under alkaline
PT conditions for production of paper pulp and animal feedstuffs
XX
XX Claim 44; Page 115-117; 180pp; Japanese.
XX
XX This sequence represents an endoglucanase protein. The invention relates
CC to an endoglucanase of fungal origin which can completely break down
CC purified cellulose at a concentration of less than 1mg protein/litre,
CC and produces more than 50% breakdown of cellulose at pH 8.5. The
CC invention includes endoglucanase protein sequences (see
CC AAB09823-B09830), endoglucanase nucleotide sequences (see
CC AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
CC identification of the endoglucanase sequences, and in the construction of
CC vectors containing the polynucleotides. The endoglucanase enzymes are
CC used for the production of pulp for papermaking and for the production of
CC animal foodstuffs.
XX
XX
SQ Sequence 360 AA;
Query Match 65.9%; Score 1332; DB 21; Length 360;
Best Local Similarity 66.4%; Pred. No. 3.1e-84;
Matches 249; Conservative 39; Mismatches 63; Indels 24; Gaps 5;
QY 1 MKETITSSALLALAGTETMAAASAKSKLYGCGGKDMNGPTCCESGTC--KVSNDYYS 58
DB 1 MKETITSSALLALAGTETMAAASAKSKLYGCGGKDMNGPTCCESGTCVDPDPNPFYS 60
QY 59 QCLAPF--SNGNKSSECSKLYGCGGKDMNGPTCCESGTCVSNDYYSQCLAPESNGNK 116
DB 61 QCPNENLSTNKS-----HKTTTESAKKTTTKGSKTTTTEASKTT 106
QY 117 TSESAAKTTTTPAPEITTTAKASNSNSG-----KSYISGGAAGNGVTRRYWDCK 171
DB 107 TTASAKTTTTEASKTTTTKKASTSTSSSSASASTNYSAVSGAGAGNETTRIMDCK 166
QY 172 ASGSMGKAVNSPVKSCNKGVTALSDSNVSGCNGNSYMCNDQPMANVNDNLAYGFA 231
DB 167 PEGSMGKADVTSPVSGCNKGVT-LADNNTQNGCVGSSYTCNDNQPMVVSDDLAVGFA 225
QY 232 AAASISGGSERKCCSCCELFTFTSVAGKGVIOVTTTGDLGSSSTAAHDLQMPGGVG 231
DB 226 AASISGGSERKCCSCCELFTFTSVAGKGVIOVTTTGDLGSSSTAAHDLQMPGGVG 285

QY 292 IFNGCSKQWGANPDNGSGRYGSISSASDCSSLPALQACCKRFFNFKQADNPSTYKEV 351
DB 286 IYNGCATQWGAFTDGGARYGVSASDCSNLPALQACCKRFGFKQADNPSTYKCV 345
QY 352 TCPKELTARTGCSRK 366
DB 346 TCPKALTAKSGCSRK 360
RESULT 11
ID AA015054 standard; Protein; 360 AA.
AC AA015054;
XX
XX 22-AUG-2002 (first entry)
XX
XX Rhizopus arrhizus endoglucanase-related protein 3.
DE
XX
XX Zymomyces-originated endoglucanase; cellulose binding domain;
XX fibre processing; waste paper de-inking; paper pulp.
XX Rhizopus arrhizus.
OS
XX MO200242474-A1.
XX
XX 30-MAY-2002.
XX
XX 21-NOV-2001; 2001MO-JP10188.
XX
XX 21-NOV-2000; 2000JP-0354296.
XX
XX (MEIJ) MEIJI SEIKA KAISHA LTD.
XX Nakane A, Baba Y, Koga J, Kubota H;
PI
XX MPI; 2002-471729/50.
XX N-PSDB; AAL43246.
XX
XX Cellulose-binding domain-lacking Zymomyces-originated endoglucanase,
PT with effect of endoglucanase activity enhanced in processing fibers,
PT deinking waste paper and improving freeness of paper pulp
XX
XX Claim 5; Page 63-65; 109pp; Japanese.
XX
XX The invention comprises the amino acid and coding sequences of
CC zymomyces-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zymomyces-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zymomyces-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.
CC The present amino acid sequence represents an endoglucanase-related
XX protein of the invention.
XX
XX
SQ Sequence 360 AA;
Query Match 65.9%; Score 1332; DB 23; Length 360;
Best Local Similarity 66.4%; Pred. No. 3.1e-84;
Matches 249; Conservative 39; Mismatches 63; Indels 24; Gaps 5;
QY 1 MKETITSSALLALAGTETMAAASAKSKLYGCGGKDMNGPTCCESGTC--KVSNDYYS 58
DB 1 MKETITSSALLALAGTETMAAASAKSKLYGCGGKDMNGPTCCESGTCVDPDPNPFYS 60
QY 59 QCLAPF--SNGNKSSECSKLYGCGGKDMNGPTCCESGTCVSNDYYSQCLAPESNGNK 116
DB 61 QCPNENLSTNKS-----HKTTTESAKKTTTKGSKTTTTEASKTT 106
QY 117 TSESAAKTTTTPAPEITTTAKASNSNSG-----KSYISGGAAGNGVTRRYWDCK 171
DB 107 TTASAKTTTTEASKTTTTKKASTSTSSSSASASTNYSAVSGAGAGNETTRIMDCK 166

QY 172 ASCSWPGKAVSSPYKSCNKDVTALSDSNVQSCGNGSNYMCNDNQPMVAVNDNLAYGFA 231
 DB 167 PSCSWPGKADVTSTVSGCNKDQGT-LADNNTQNGCVGSSSTYCNQDPWVAVSDDLAYGFA 225
 QY 232 AAASGGSESRWCCSCFELTFTSTVAGKKWVIQVNTGDLGSSSTGAHFDLQMPGGVG 291
 DB 226 AAASGGSESRWCCACFELTFTSTVAGKKWVQVNTGDLGSSSTGAHFDLQMPGGVG 285
 QY 292 IFNGCSKQWGPNDGMSRKGISASDSSLPALQAGCKRFPNFKADNPSTMYKEV 351
 DB 286 IYNGCATQMGAPTDGMAFYGVSSASDSSNLPALQAGCKRFPNFKADNPSTMYKQV 345
 QY 352 TCPKEITAKTGCSRK 366
 DB 346 TCPKAITAKSGCSRK 360

RESULT 12
 ABB08062
 ID ABB08062 standard; protein; 360 AA.
 AC ABB08062;
 DT 27-AUG-2002 (first entry)
 DE R. oryzae CP96001 RCEI11 protein.
 KM Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KW pulp treatment; RCEI11.
 OS Rhizopus oryzae.
 XX
 XX
 FT Peptide 1..23
 FT Protein /note="signal peptide"
 FT Protein 24..360 "mature protein"
 XX
 XX
 PN MO200238754-A1.
 XX
 PD 16-MAY-2002.
 XX
 PF 12-NOV-2001; 2001WO-JP09858.
 XX
 PR 10-NOV-2000; 2000JP-0343921.
 XX
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX
 PI Koga J, Nakane A, Baba Y, Kono T,
 XX
 XX WPI; 2002-471555/50.
 XX
 DR
 XX
 PT Cellulase preparations containing transconjugant-originated
 PT endoglucanase and non-ionic surfactants, useful in detergent
 PT compositions, in treating cellulose fibers and deinking waste paper and
 PT improving freeness of paper pulp
 XX
 PS Claim 3; Page 25-27; 36pp; Japanese.
 XX
 CC The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEI1, RCEI11, MCEI, MCEI1 or PCEI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC R. oryzae CP96001/RCEI11 protein.
 XX
 SO Sequence 360 AA;

Query Match 65.9%; Score 1332; DB 23; Length 360;
 Best Local Similarity 66.4%; Pred. No. 3.1e-84;
 Matches 249; Conservative 39; Mismatches 63; Indels 24; Gaps 5;

QY 1 MKPFTTSSALLALALGTEMAAASKSLYGQCGKDWNGPTCCSGSTC--KVSNDYIS 58
 DB 1 MKPFTTSSALLALALAVTEMAHAECGKAYYQCGKDWDPPTCCSGSTCVDYDNPYVS 60
 QY 59 QCLAPE--SNGNKSESGSKLYGQCGKDWNGPTCCSGSTCKVSNDYISQCLAPESNGK 116
 DB 61 QCPVEMENLTSTNKS-----HKTFTBSAKTTTTSKSKTTTTEASKKT 106
 QY 117 TSESATKTTTAAPAKEITTTAKASNSNSG-----KYSIVSGASGNGVTRRYMDCK 171
 DB 107 TTEASKTTTTEASKKTITTTTKASTSTSSSSSSASTNYSVSGASGNETTRRYMDCK 166
 QY 172 ASCSWPGKAVSSPYKSCNKDVTALSDSNVQSCGNGSNYMCNDNQPMVAVNDNLAYGFA 231
 DB 167 PSCSWPGKADVTSTVSGCNKDQGT-LADNNTQNGCVGSSSTYCNQDPWVAVSDDLAYGFA 225
 QY 232 AAASGGSESRWCCSCFELTFTSTVAGKKWVIQVNTGDLGSSSTGAHFDLQMPGGVG 291
 DB 226 AAASGGSESRWCCACFELTFTSTVAGKKWVQVNTGDLGSSSTGAHFDLQMPGGVG 285
 QY 292 IFNGCSKQWGPNDGMSRKGISASDSSLPALQAGCKRFPNFKADNPSTMYKEV 351
 DB 286 IYNGCATQMGAPTDGMAFYGVSSASDSSNLPALQAGCKRFPNFKADNPSTMYKQV 345
 QY 352 TCPKEITAKTGCSRK 366
 DB 346 TCPKAITAKSGCSRK 360

RESULT 13
 AAO15063
 ID AAO15063 standard; protein; 245 AA.
 AC AAO15063;
 DT 22-AUG-2002 (first entry)
 DE Endoglucanase-related recombinant protein 2.
 KM Zygomyces-originated endoglucanase; cellulose binding domain;
 KW fibre processing; waste paper de-inking; paper pulp.
 OS Unidentified.
 XX
 XX
 PN MO200242474-A1.
 XX
 PD 30-MAY-2002.
 XX
 PF 21-NOV-2001; 2001WO-JP10188.
 XX
 PR 21-NOV-2000; 2000JP-0354296.
 XX
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX
 PI Nakane A, Baba Y, Koga J, Kubota H;
 XX
 XX WPI; 2002-471729/50.
 XX
 DR
 XX
 PT Cellulose-binding domain-lacking Zygomyces-originated endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 PT deinking waste paper and improving freeness of paper pulp
 XX
 PS Example 2; Page 33; 109pp; Japanese.
 XX
 CC The invention comprises the amino acid and coding sequences of
 CC Zygomyces-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The Zygomyces-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The Zygomyces-

CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.

XX Sequence 245 AA;

Query Match 61.0%; Score 1231.5; DB 23; Length 245;

Best Local Similarity 64.8%; Pred. No. 1.7e-77; Indels 121; Gaps 1;

Matches 237; Conservative 1; Mismatches 7;

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 120

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 24

PT conditions for production of paper pulp and animal feedstuffs
 XX Claim 44; Page 120-122; 180pp; Japanese.

XX This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal feedstuffs.

XX Sequence 338 AA;

Query Match 59.5%; Score 1202; DB 21; Length 338;

Best Local Similarity 60.1%; Pred. No. 2.7e-75;

Matches 221; Conservative 48; Mismatches 67; Indels 32; Gaps 8;

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 58

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 59

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 118

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 96

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 178

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 154

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 238

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 213

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 298

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 270

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 358

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 330

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 366

1 MKFTITSSALLALALGTEMASAKSKLYGCGGKDMNGPTCCESGTCVANDYYSQC 338

